

REMARKS

Claim Rejections

Claims 13, 17, 20, 21 and 23 are rejected under 35 U.S.C. § 102(a) as being anticipated by Lin (U.S. 6,677,668). Claims 14-16 and 18-19 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Lin. Claim 22 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Lin in view of Bernier et al. (U.S. 5,847,929). Claim 24 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Lin in view of Chung et al. (U.S. 6,525,406). Claim 25 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Lin in view of Tao et al. (U.S. 6,191,360).

Claim Amendments

By this Amendment, Applicant has canceled claim 15 and amended claim 13 of this application. It is believed that the amended claims specifically set forth each element of Applicant's invention in full compliance with 35 U.S.C. § 112, and define subject matter that is patentably distinguishable over the cited prior art, taken individually or in combination.

The primary reference to Lin teaches an integrated circuit chip (120) located on a substrate (110). The integrated circuit chip (120) being encapsulated by an encapsulation layer (125), unlike the present invention wherein the encapsulation and the chip are spaced apart. Two test packages (160, 170) are also located on the substrate.

Lin does not teach the molding compound (130) having two extensions (132) extending from the body and along a horizontal direction on the substrate (110); the two extensions are orthogonal; at least one recession (131) having an arch shape and being located between the two extensions (132); nor does Lin teach the two extensions being spaced apart from the plurality of contact pads (113) located on the upper substrate surface.

It is axiomatic in U.S. patent law that, in order for a reference to anticipate a claimed structure, it must clearly disclose each and every feature of the claimed structure. Applicant submits that it is abundantly clear, as discussed above, that Lin

does not disclose each and every feature of Applicant's amended claims and, therefore, could not possibly anticipate these claims under 35 U.S.C. § 102. Absent a specific showing of these features, Lin cannot be said to anticipate any of Applicant's amended claims under 35 U.S.C. § 102.

The secondary reference to Bernier et al. teaches a ceramic module having a top half (100) and a bottom half (102), a semiconductor chip (106) connected to the top half, and an aluminum heat spreader (118) connected to the top half by epoxy (120).

Bernier et al. do not teach the molding compound (130) having two extensions (132) extending from the body and along a horizontal direction on the substrate (110); the two extensions are orthogonal; at least one recession (131) having an arch shape and being located between the two extensions (132); nor do Bernier et al. teach the two extensions being spaced apart from the plurality of contact pads (113) located on the upper substrate surface.

The secondary reference to Chung et al. teaches a semiconductor device and is cited for teaching an indentation (48) formed in an upper edge of an encapsulation material (24).

Chung et al. do not teach the molding compound (130) having two extensions (132) extending from the body and along a horizontal direction on the substrate (110); the two extensions are orthogonal; at least one recession (131) having an arch shape and being located between the two extensions (132); nor do Chung et al. teach the two extensions being spaced apart from the plurality of contact pads (113) located on the upper substrate surface.

The secondary reference to Tao et al. teaches a thermally enhanced BGA package and is cited for teaching a substrate (30) having a pad (32) connected to a heat spreader.

Tao et al. do not teach the molding compound (130) having two extensions (132) extending from the body and along a horizontal direction on the substrate (110); the two extensions are orthogonal; at least one recession (131) having an arch shape and being located between the two extensions (132); nor do Tao et al. teach the two extensions being spaced apart from the plurality of contact pads (113) located on the upper substrate surface.

Even if the teachings of Lin, Bernier et al., Chung et al., and Tao et al. were combined, as suggested by the Examiner, the resultant combination does not suggest: the molding compound (130) having two extensions (132) extending from the body and along a horizontal direction on the substrate (110); the two extensions are orthogonal; at least one recession (131) having an arch shape and being located between the two extensions (132); nor does the combination suggest the two extensions being spaced apart from the plurality of contact pads (113) located on the upper substrate surface.

It is a basic principle of U.S. patent law that it is improper to arbitrarily pick and choose prior art patents and combine selected portions of the selected patents on the basis of Applicant's disclosure to create a hypothetical combination which allegedly renders a claim obvious, unless there is some direction in the selected prior art patents to combine the selected teachings in a manner so as to negate the patentability of the claimed subject matter. This principle was enunciated over 40 years ago by the Court of Customs and Patent Appeals in In re Rothermel and Waddell, 125 USPQ 328 (CCPA 1960) wherein the court stated, at page 331:

The examiner and the board in rejecting the appealed claims did so by what appears to us to be a piecemeal reconstruction of the prior art patents in the light of appellants' disclosure. ... It is easy now to attribute to this prior art the knowledge which was first made available by appellants and then to assume that it would have been obvious to one having the ordinary skill in the art to make these suggested reconstructions. While such a reconstruction of the art may be an alluring way to rationalize a rejection of the claims, it is not the type of rejection which the statute authorizes.

The same conclusion was later reached by the Court of Appeals for the Federal Circuit in Orthopedic Equipment Company Inc. v. United States, 217 USPQ 193 (Fed.Cir. 1983). In that decision, the court stated, at page 199:

As has been previously explained, the available art shows each of the elements of the claims in suit. Armed with this information, would it then be non-obvious to this person of ordinary skill in the art to

coordinate these elements in the same manner as the claims in suit? The difficulty which attaches to all honest attempts to answer this question can be attributed to the strong temptation to rely on hindsight while undertaking this evaluation. It is wrong to use the patent in suit as a guide through the maze of prior art references, combining the right references in the right way so as to achieve the result of the claims in suit. Monday morning quarterbacking is quite improper when resolving the question of non-obviousness in a court of law.

In In re Geiger, 2 USPQ2d, 1276 (Fed.Cir. 1987) the court stated, at page 1278:

We agree with appellant that the PTO has failed to establish a *prima facie* case of obviousness. Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching suggestion or incentive supporting the combination.

Applicant submits that there is not the slightest suggestion in either Lin, Bernier et al., Chung et al., or Tao et al. that their respective teachings may be combined as suggested by the Examiner. Case law is clear that, absent any such teaching or suggestion in the prior art, such a combination cannot be made under 35 U.S.C. § 103.

Neither Lin, Bernier et al., Chung et al., nor Tao et al. disclose, or suggest a modification of their specifically disclosed structures that would lead one having ordinary skill in the art to arrive at Applicant's claimed structure. Applicant hereby respectfully submits that no combination of the cited prior art renders obvious Applicant's amended claims.

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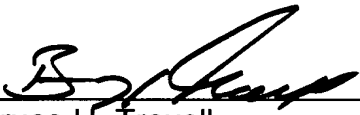
Summary

In view of the foregoing amendments and remarks, Applicant submits that this application is now in condition for allowance and such action is respectfully requested. Should any points remain in issue, which the Examiner feels could best be resolved by either a personal or a telephone interview, it is urged that Applicant's local attorney be contacted at the exchange listed below.

Respectfully submitted,

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